PSOCOPTERA FROM COOCUMBAC ISLAND NATURE RESERVE, TAREE, NEW SOUTH WALES

C.N. SMITHERS

Entomology Department, Australian Museum, College St, Sydney, NSW 2000

Abstract

Seventeen species of Psocoptera are recorded from a floodplain rainforest remnant in Coocumbac Island Nature Reserve. They include one new species, *Ptycta williamsorum* sp. nov. (Psocidae), and the previously unknown male of *Ectopsocus hartleyi* Smithers, which is described.

Introduction

Floodplain, or riverine, rainforest has been extensively cleared in New South Wales, with only about 100 hectares surviving as disjunct remnants (Williams 1993). Although a number of remnants survive in the Manning Region (Williams 1993, 1995; Evans 1993), only that of Coocumbac Island Nature Reserve, Taree, is currently included in the NSW system of nature reserves. Their invertebrate fauna is largely unknown. This paper records 17 species of Psocoptera collected during a faunal survey of that reserve. The survey, part of the Australian Museum's Rainforest Terrestrial Invertebrate Program, was carried out by Geoffrey and Thusnelda Williams. All material examined is deposited in the Australian Museum, Sydney.

Psocoptera from Coocumbac Nature Reserve

ECTOPSOCIDAE

Ectopsocus albiceps Smithers

Material examined. 4 ♂, 24.x.-10.xi.1994; 2 ♂, 1 ♀, 10.xi.1994; 1 ♂, 10-21.xi.1994.

Ectopsocus australis Schmidt & Thornton

Material examined. 1 ♀, 24.x.1994; 3 ♂, 2 ♀, 24.x.-10.xi.1994; 1 ♂, 4 ♀, 10-21.xi.1994; 3 ♂, 4 ♀, 1-7.xii.1994.

Ectopsocus briggsi McLachlan

Material examined. 1 ♂, 24.x.-10.xi.1994.

Ectopsocus hartleyi Smithers

Ectopsocus hartleyi was described on female material only from the Mount Royal area of the Hunter Valley, NSW. The males described here are associated with the females on the basis of the similarity of their general morphology, fore wing venation (Rs and M joined by a crossvein, a condition uncommon in *Ectopsocus*) and distinctive head and wing pattern (Smithers 1997).

Description of male. Coloration (in alcohol) as in female.

Morphology. Length of body 1.6 mm. General morphology and arrangement of setae as in female. Length of flagellar segments: f1 = 0.175 mm; f2 = 0.11 mm. Eyes fairly small for a male of this genus, not reaching level of vertex. IO/D: 2.2; PO: 0.83. Measurements of hind leg: F: 0.31 mm; T: 0.49 mm; t1: 0.19 mm; t2: 0.08 mm; rt: 2.4:1; ct: 14,0. Fore wing length: 1.22 mm; width: 0.48 mm. Venation as in female, with Rs and M joined by a distinct crossvein. Pterostigma a little wider distally than elsewhere. Wing margin from just basal to distal section of Sc to nodulus setose, a double row of setae from distal end of pterostigma to R4+5. Veins, except Cu2, setose, setae stout and dark, as in female. Hind wing as in female, glabrous. Clunial comb of about 45 small, evenly spaced teeth arranged in a straight transverse row. Epiproct simple, with few setae. Paraproct with field of eight large, closely spaced trichobothria and one fine seta without a 'rosette' base, as in female. Hind margin with short, stout cone with a long adjacent seta. Hypandrium simple with transverse hind margin. Phallosome (Fig. 7, slightly distorted in preparation) with distinctive arrangement of sclerites. Two long, distally widening, apically outwardly curved rods flank a median rugose penial bulb. A centrally placed T-shaped sclerite lies above the bulb on each side of which is an elongated, sclerotised plate lying between bulb and lateral rod.

Material examined. 3 ♂, floodplain rainforest remnant, Coocumbac Nature Reserve, Taree, 24.x.-10.xi.1994, G. & T. Williams.

LEPIDOPSOCIDAE

Echmepteryx (Loxopholia) brunnea Smithers

Material examined. 1 ♀, 21-30.xi.1994.

MYOPSOCIDAE

Myopsocus australis (Brauer)

Material examined. 1 ♂, 10.xi.1994.

PERIPSOCIDAE

Peripsocus milleri (Tillyard)

Material examined. 2 ♂, 24.x.-10.xi.1994; 1 ♀, 10-21.xi.1994; 1 ♀, 21-30.xi.1994; 1 ♂, 1-7.xii.1994.

Peripsocus tillyardi New

Material examined. 1 ♀, 10.xi.1994.

PHILOTARSIDAE

Haplophallus sinus Thornton

Material examined. 1 ♀, 24.x.1994; 1 ♂, 1 ♀, 24.x.-10.xi.1994; 1 ♀, 10.xi.1994; 2 ♂, 10-21.xi.1994.

Latrobiella guttatus (Tillyqrd)

Material examined. 2 ♂, 2 ♀, 24.x.-10.xi.1994.

Latrobiella lemsidia (Thornton & New)

Material examined. 1 ♂, 1-7.xii.1994.

Latrobiella paraguttatus (Thornton & New)

Material examined. 1 ♀, 24.x.-10.xi.1994; 2 ♀, 10.xi.1994.

PSEUDOCAECILIIDAE

Austropsocus viridis (Enderlein)

Material examined. 3 ♂, 2 ♀, 24.x.-10.xi.1994; 1 ♂, 10.xi.1994.

Heterocaecilius lachlani (Enderlein)

Material examined. 3 ♂, 1 ♀, 24.x.-10.xi.1994.

Lobocaecilius monicus Lee & Thornton

Material examined. 3 ♂, 2 ♀, 24.x.-10.xi.1994.

Pseudoscottiella papillosa Schmidt & Thornton

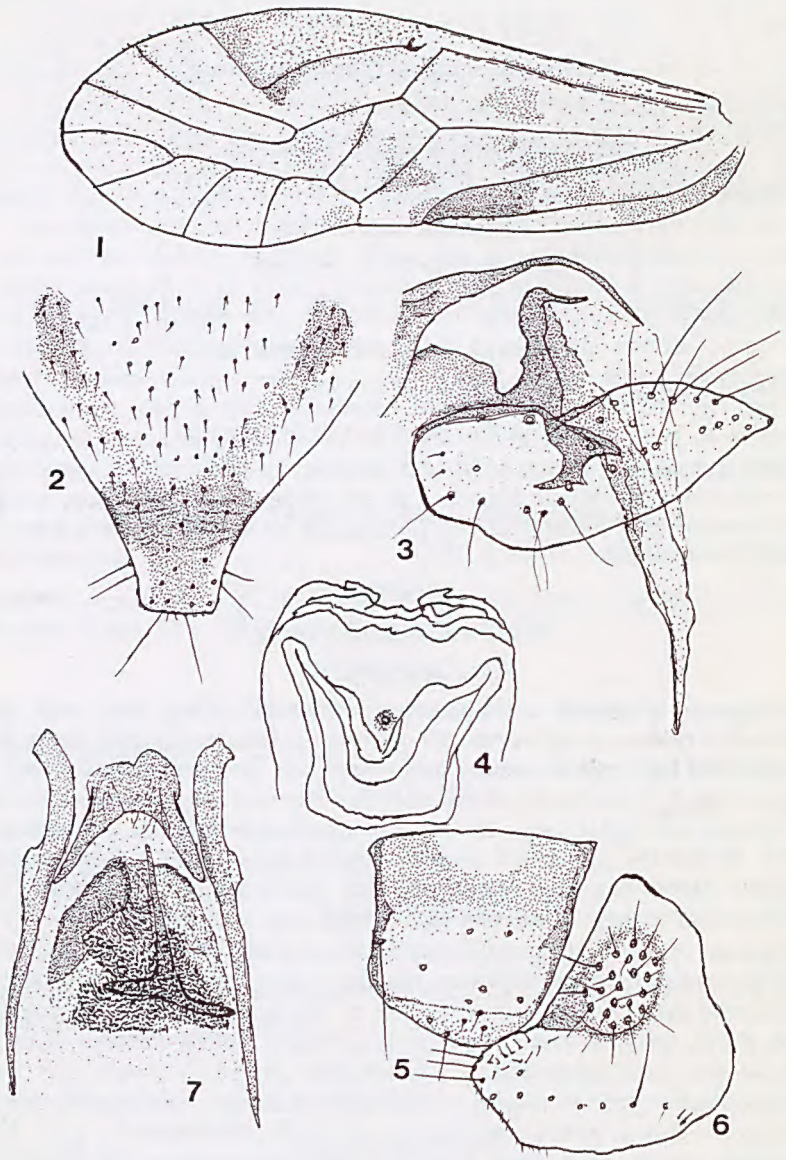
Material examined. 1 ♂, 24.x.1994.

PSOCIDAE

***Ptycta williamsorum* sp. nov.**

(Figs 1-6)

Description of female. Coloration (in alcohol): Head pale with very distinctive pattern in various shades of brown. Median epicranial suture dark in posterior half, pale in anterior half. Head pale grey-brown across back of head, a band of similar colour adjacent to compound eyes and on either side of median epicranial suture so that each epicranial plate has a central pale area. Within the pale area a conspicuous dark brown spot, a similar spot at anterior part of pale area adjacent to each lateral ocellus. Fine brown line from ocellar triangle to antenna base. Frons pale with two divergent brown lines from ocellar triangle to epistomial suture, each line ending in a spot. A similar spot on each side between the above spot and base of antenna near epistomial suture. A line from bottom of eye to epistomial suture passing just above antenna base. Fine brown parallel antero-posterior lines on postclypeus with suggestion of a broad, pale brown, V-shaped pale band from antennae base to middle of clypeolabral suture. Genae pale, labrum mostly so. Scape, pedicel and first and second flagellar segments pale, distal segments brown. Eyes black. Ocellar tubercle black. Meso- and metanotum pale grey-brown with darker sutures, areas on each side just posterior to axillary cord dark brown. Pleura pale, dark brown just below wing bases. Coxae pale, dark basally. Femora pale with narrow brown band just basad of joint with tibia. Tibiae pale. Both tarsal segments of prothoracic legs brown.



Figs 1-7. 1-6: *Ptycta williamsorum* sp. nov., female: 1, fore wing; 2, subgenital plate; 3, gonapophyses; 4, entrance to spermatheca; 5, epiproct; 6, paraproct. 7: *Ectopsocus hartleyi*, male phallosome.

Mesothoracic legs with basal tarsal segment pale, distal segment dark. Metathoracic tarsus similar but with a short dark brown section at distal end of basal segment. Fore wings (Fig. 1) hyaline with pattern in various shades of brown. Hind wing hyaline with small faint brown area at ends of veins R2+3 and R4+5. Abdomen pale dorsally and dorsolaterally with three broad longitudinal bands made up of irregular patches on each segment.

Morphology: Length of body 3.9 mm. Median epicranial suture distinct, anterior arms evanescent. Vertex transverse between compound eyes. Head, including genae, lightly setose. Length of flagellar segments: f1: 0.81 mm; f2: 0.70 mm. Antennae strongly setose, most setae of first two flagellar segments about as long as flegellar diameter. Eyes large, just reaching level of vertex, emarginate opposite base of antenna. IO/D: 1.5; PO: 0.92. Measurements of hind leg: F: 0.81 mm; T: 1.75 mm; t1: 0.54 mm; t2: 0.14 mm; rt: 4:1; ct: 24,2. Combs of ctenidiobothria strongly developed and well sclerotised. Fore wing (Fig. 1) margin with a few short setae between end of pterostigma and wing apex. Basal section of Sc, weakly developed, ends free in costal cell. Pterostigma concave proximal to hind angle. No spurvein. Rs and M fused for a length. Cu1 straight where it forms proximal margin of discoidal cell. M slightly curved to give a concave distal margin to cell. Basal section of Cu1a about equal in length to second and at a slight angle to it. Hind wing with Rs and M fused for a short length. A few setae on wing margin between R2+3 and R4+5, these veins a little thicker than stem of Rs fork. Epiproct (Fig. 5). Paraproct (Fig. 6). Subgenital plate (Fig. 2). Entrance to spermatheca (Fig. 4) surrounded by characteristic, lightly sclerotised folds of integument. Gonapophyses (Fig. 3) with small ventral valve, broad transversely ovoid, external valve.

Male. Unknown.

Material examined. NEW SOUTH WALES: Holotype ♀, floodplain rainforest remnant, Coocumbac Nature Reserve, Taree, 10-21.xii.1994, G. & T. Williams (in Australian Museum, Sydney).

Discussion. The females of several Australian species of *Ptycta* have a pigmented area adjacent to fore wing vein M+Cu1 in addition to other pigmented areas. In most species this patch lies behind M+Cu1 in the angle formed by Cu1 and its separation from M. In three previously described species this patch is remote from the angle and lies nearer to the wing base, as it does in *P. williamsorum*. The other species with this wing feature are *P. campbelli* Schmidt & Thornton, *P. emerginata* New and *P. umbrata* New. They are indistinguishable from one another on this feature. *P. emarginata* can be distinguished from *P. williamsorum* in having Rs and M meeting in a point. In *P. williamsorum* the patch of brown in the angle at the nodulus is much more extensive than in *P. campbelli,* occupying about the distal third of cell Cu2. In *P. umbrata* there are two patches of brown in cell R, whereas in *P. williamsorum* there is only one. The female genitalia of all four species

are similar to one another, especially in having an exceptionally small ventral valve and in the transversely elongate-ovoid shape of the setose external valve.

Acknowledgments

I would like to thank Geoffrey and Thusnelda Williams for making their material available for study.

References

EVANS, T.J. 1993. *Aspects of the structure and floristics of rainforest remnants within the lower Manning Valley.* M.Litt. thesis; University of New England, Armidale.

SMITHERS, C.N. 1997. New species and new records of Ectopsocidae (Insecta: Psocoptera) from the Mount Royal area, Hunter Valley, New South Wales. *General and Applied Entomology.* **27** [1996]: 43-48.

WILLIAMS, G.A. 1993. *Hidden rainforests: subtropical rainforests and their invertebrate biodiversity.* New South Wales University Press & Australian Museum; Sydney; 188pp.

WILLIAMS, G.A. 1995. *Pollination ecology of lowland subtropical rainforests in New South Wales.* Ph.D. Thesis; University of New South Wales; Kensington.